

REMARKS

This application pertains to a novel electrically conductive, thermoplastic and heat-activatable adhesive film, useful for the permanent connection of two articles..

Claims 9-19 are pending.

Applicants gratefully acknowledge the renumbering of the claims by the Examiner. The error in numbering the claims in the Preliminary Amendment arose out of the substitution of claims 1-8 for original claims 1-10 during the international stage of this application.

Claims 9-19 stand rejected under 35 U.S.C. 112, second paragraph, for depending on claim 1, whereas there no longer is a claim 1 in the application, the presence of non-traditional Markush language; the use of the phrase "in particular" and the Examiner's view of the expression "as the module" as lacking antecedent basis. Initially, it appears to Applicants that this rejection is directed to claims 10-19, and not 9-19, as claim 9 does not have any of the infirmities mentioned by the Examiner.

The claim dependencies and Markush language have now been corrected and the "in particular" and "module" phrases canceled. The rejection of claims 9-19 under 35 U.S.C. 112, second paragraph, should accordingly now be withdrawn.

Claims 9-13 and 16-18 stand rejected under 35 U.S.C. 103(a) as obvious over EPA 0140619A2.

The adhesive of the '619 reference does not comprise a combination of a thermoplastic polymer and an epoxy resin, however, as does Applicants' adhesive.

Applicants' adhesive combines resins which cross-link to form a three-dimensional polymer network of high strength and permanently elastic elastomers which prevent embrittlement of the product. The chemical crosslinking reaction of the resins brings about high strengths between the adhesive film and the bonded surface, and achieves a high internal strength of the product. Applicants' novel adhesive therefore, after curing, prevents non-destructive removal of the bonded components, such as chips, by, for example, heating (page 3, lines 36-38).

The adhesive of the '619 reference, by contrast, becomes fluid at a result of heat or pressure (page 6, lines 17-19), and the bonded parts can therefore be easily separated without harming them. The security provided by Applicants' adhesive is therefore not possible with that of the '619 reference.

Nothing in the '619 reference would suggest the combination of a thermoplastic polymer with an epoxy resin (with hardener), and the teachings of the '619 reference could not possibly lead anyone to Applicants' novel electrically conductive, thermoplastic and heat-activatable adhesive film.

The rejection of claims 9-13 and 16-18 under 35 U.S.C. 103(a) as obvious over EPA 0140619A2 should accordingly now be withdrawn.

Claims 9-19 stand rejected under 35 U.S.C. 103 as obvious over EP 0846743A1 in view of EPA 0134623A2. The Examiner sees the primary reference as disclosing substantially an anticipation of Applicants electrically conductive adhesive film **except for** the absence of electrically conductive silver coated glass beads or silver particles being present in the adhesive composition. The Examiner turns to the '623 reference for silver particles.

The '623 reference teaches that the spherical particles used therein should be readily deformable to the thickness of the adhesive between the particles. Glass beads are not deformable, however. The '623 reference could not therefore lead to Applicants' electrically conductive, thermoplastic and heat activatable adhesive film.

The rejection of claims 9-19 stand under 35 U.S.C. 103 as obvious over EP 0846743A1 in view of EPA 0134623A2 should accordingly now be withdrawn.

Claims 9-19 stand rejected under 35 U.S.C. 103(a) as obvious over DE 19519499A1 in view of EPA '623. The Examiner views the '499 reference as disclosing a closely related adhesive as Applicants', except for the presence of electrically conductive particles, for use in implanting modules into cavities in a card. The modules

have electrical connection points that are linked to the contact surfaces by electrical conductors, with a suitable adhesive film being used to bond its opposite side to the card. The Examiner relies on the '623 reference for the addition of electrically conductive particles to the adhesive of the '499 reference.

However, there is no reason found in either reference why anyone would want to add electrically conductive particles to the adhesive of the '499 reference. It appears that the adhesive used in the '499 reference bonds surfaces which are not in electrical contact, i.e., the bonds the "opposite" side of the module to the card. There is therefore no suggestion to add any electrically conductive particles to the adhesive composition of the '499 reference.

Applicants' novel electrically conductive, thermoplastic and heat-activatable adhesive film is therefore not obvious over this combination of references, and the rejection of claims 9-19 under 35 U.S.C. 103(a) as obvious over DE 19519499A1 in view of EPA '623 should be withdrawn.

In view of the present remarks it is believed that claims 9-19 are now in condition for allowance. Reconsideration of said claims by the Examiner is respectfully requested and the allowance thereof is courteously solicited.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If any extension of time for this response is required, Appellants request that this

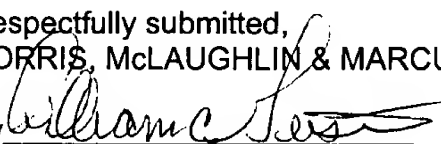
be considered a petition therefor. Please charge the required petition fee to Deposit Account No. 14-1263.

Additional Fee

Please charge any insufficiency of fee or credit any excess to Deposit Account No. 14-1263.

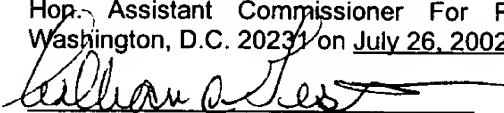
Respectfully submitted,
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hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Hon. Assistant Commissioner For Patents, Washington, D.C. 20231 on July 26, 2002


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Date: July 26, 2002



**MARKED-UP COPIES OF AMENDED CLAIMS
SHOWING CHANGES RELATIVE TO PREVIOUS VERSIONS**

Claim 9 (amended). Electrically conductive, thermoplastic and heat-activatable adhesive film, comprising

- i) a thermoplastic polymer in a proportion of from 30 to 89.9% by weight,
- ii) one or more tackifying resins in a proportion of from 5 to 50% by weight and/or
- iii) epoxy resins with hardeners, with or without accelerators, in a proportion of from 5 to 40% by weight, and
- vi) silver-coated glass beads [or silver particles] in a proportion of from 0.1 to 40% by weight,
- vii) where the diameter of the glass beads is at least equal to the thickness of the adhesive film.

Claim 10. (amended) Adhesive film according to Claim [1] 9, wherein the thermoplastic polymer comprises a member of the group consisting of thermoplastic polyolefins, polyesters, polyurethanes or polyamides [or] and modified rubbers[, such as nitrile rubbers in particular].

Claim 11. (amended) Adhesive film according to Claim [1] 9, wherein the adhesive film is blended with one or more additives.

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Claim 12. (amended) Thermoplastic adhesive film according to Claim [1] 9, wherein the adhesive film has a thickness of from 20 to 500 μm .

Claim 13. (amended) Thermoplastic adhesive film according to Claim [1] 9, wherein the adhesive film is suitable for hot pressing at temperatures below 120°C.

Claim 14. (amended) Thermoplastic adhesive film according to Claim [1] 9, wherein the adhesive film [has the same dimensions as the module and] is in the form of a punched film section.

Claim 16. (amended) A method for structural bonding, wherein the adhesive film of claim [1] 9, with or without subsequent heat-curing, is used for said bonding.

Claim 17. (amended) The adhesive film of claim [13] 11, wherein said additives are selected from the group consisting of colorants and mineral or organic fillers.

Claim 18. (amended) The adhesive film of claim [19] 17, wherein said additives are selected from the group consisting of silica, carbon powders, [or] and metal powder.

Claim 19. (amended) The adhesive film of claim [15] 13, wherein said temperatures are from 80°C to 100°C.